

## **ABSTRACT**

1       A bonding structure with a buffer layer, and a method of forming the same are  
2       provided. The bonding structure comprises a first substrate with metal pads thereon, a  
3       protection layer covered on the surface of the substrate, a first adhesive metal layer  
4       formed on the metal pads, a buffer layer coated on the protection layer and the metal pads,  
5       a first metal layer covered on the buffer layer, and a second substrate with electrodes and  
6       a bonding layer thereon. The first metal layer, the electrodes and the bonding layer are  
7       bonded to form the bonding structure. Direct bonding can be performed through surface  
8       activation or heat pressure. The method uses fewer steps and is more reliable. The  
9       temperature required for bonding the structure is lower. The bonding density between the  
10      contacted surfaces is increased to a fine pitch. The quality at the bonding points is  
11      increased because fewer contaminations between the contacted surfaces are generated.